CMPE 350 - Spring 2016

PS 1 - 17.02.16

1.6 Give state diagrams of DFAs recognizing the following languages. In all parts the alphabet is $\{0, 1\}$.

    a) $\{w|w$ begins with a 1 and ends with a 0$\}$

    d) $\{w|w$ has length at least 3 and its third symbol is a 0$\}$

    f) $\{w|w$ doesn't contain the substring 110$\}$

    h) $\{w|w$ is any string except 11 and 111$\}$

    i) $\{w|$every odd position of w is a 1$\}$

1.36 Let $B_n = \{a^k|$ where k is a multiple of $n\}$. Show that for each $n > 1$, the language B_n, is regular.

- x is a prefix of string y if a string z exists where $xz = y$. Let A be a regular language and let $L_A = \{x|\exists$ a string z such that $xz \in A\}$. Prove that L_A is regular.

- If a DFA with n states accepts a string of length $n - 1$, then it also accepts infinitely many other strings.